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Descriptions of Three New Species of the Genus *Stenus*
LATREILLE (Coleoptera, Staphylinidae), with Notes
on Synonyms and New Records from Japan^{1,2)}

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Abstract Three new staphylinid beetles of the subgenus *Nestus* are described: *Stenus satushin* from Ehime Pref., Shikoku, *S. ochiba* from Nagano and Hiroshima Prefs. and *S. toukin* from Aichi Pref. *Stenus gatenpio* NAOMI, 1990 a, is placed in synonymy with *S. lewisius* SHARP, 1874; *S. niponensis* CAMERON, 1930 with *S. japonicus* SHARP, 1874; *S. sasajii* NAOMI, 1988 a with *S. puberulus* SHARP, 1874; *S. nomurai* NAOMI, 1988 a with *S. mikado* HROMÁDKA, 1979; *S. jambar* NAOMI, 1990 b with *S. punctifer* NAOMI, 1988 b; *S. guttalis ishigakiensis* NAOMI, 1988 b with *S. guttalis* FAUVEL, 1895. *Stenus amurensis* EPPELSHEIM, 1886, *S. boops* LJUNGH, 1804, and *S. raddei* RYBKIN, 1987 are first recorded from Japan (Hokkaido). *Stenus mam-mops* CASEY, 1884 is first recorded from the main island of Hokkaido.

Key words: Coleoptera; Staphylinidae; Steninae; *Stenus*: Japan.

In this paper, three new species of staphylinid beetles belonging to the *S. zimmermanni* subgroup (sensu NAOMI, 1990 a) of the *S. humilis* species-group are described from Honshu and Shikoku based on the specimens of the NAOMI and PUTHZ collections, and their aedeagi are illustrated for comparison. Synonymic notes on some Japanese species are given and the species new to Japan or to Hokkaido are also reported.

Measurement for proportion was made basically on the basis of holotype specimen. If it was made on other specimens, the specimens measured are put down in the remarks in and after this paper for this series of studies.

Abbreviation of CBM–ZI for holotypes means “Natural History Museum and Institute, Chiba; Zoology Insecta”.

1) Studies on the subfamily Steninae from Japan, XX (NAOMI).

2) Contribution to the knowledge of Steninae, 232 (PUTHZ).

Stenus (Nestus) satushin NAOMI et PUTHZ, sp. nov.

Male. Body length: 2.7–3.5 mm (fore-parts: 1.6 mm).

Body black, moderately shining; maxillary palpi brown to yellowish brown; labrum entirely black, moderately shining; antennae dark red to black; legs brown to reddish or yellowish brown except for dark apical parts of femora and bases of tibiae.

Body small and somewhat flat above.

Head shorter (0.72: 1) and broader (1.24: 1) than pronotum, transverse, 1.73 times as broad as long, broadest at about posterior 1/3; labrum with sparse, yellow and relatively long setae; clypeofrontal area deflected, with the same kind of setae as labrum, posterior part of clypeofrontal area punctate; interocular area with basiantennal tubercles small, distinct, a pair of longitudinal depressions which are deep and divergent posteriorly, median part between the depressions distinctly elevated; punctures almost same in size, round and dense, average diameter of puncture slightly smaller than widest cross-section of 3rd antennal segment, interstices mostly narrower than half the diameters of punctures, shining, and indistinctly sculptured. Antennae short, reaching posterior 1/3 of pronotum, 1st and 2nd segments each large, elongate oval, much broader than 3rd, 3rd to 7th each elongate, 8th smallest, 9th to 11th forming a loose club, with relative lengths of segments from base to apex as 10: 10: 14: 7: 6: 6: 5: 4: 4: 5: 6.

Pronotum about as long as and narrower than (0.81: 1) elytra, somewhat flat above, broadest near the middle; surface slightly uneven; punctation rough and very dense, distinctly coarser than on frons, diameter of puncture as large as or slightly larger than widest cross-section of 3rd antennal segment, interstices much narrower than diameters of punctures, shining, and indistinctly sculptured. Mesoscutellum with a large fovea on posterior corner.

Elytra broader than long (1.29: 1), subtrapezoidal, strongly constricted at base, side margins distinctly but not much divergent, hind margins together forming a shallow emargination, humeral impression distinct, also a posterolateral impression can be seen; punctures oval to round, very dense and rough, slightly larger than those on pronotum, interstices shining, much narrower than diameters of punctures, indistinctly sculptured.

Legs relatively short; middle and hind femora each with a small spine at apico-internal part.

Abdomen subparallel-sided or gently narrowed posteriorly in 3rd to 6th segments, strongly narrowed posteriorly in 7th and 8th segments; paratergites in 3rd to 6th segments distinct and punctate; 3rd to 5th tergites each with three keels at base, the median keel larger than the lateral ones, the keels becoming smaller from 3rd to 5th tergites, each with a transverse depression; punctures round, distinct and regular, sparser and smaller than those on elytra in 3rd tergite, the interstices between punctures distinctly sculptured, punctures becoming smaller posteriorly from 3rd to 8th

tergites; punctures on 8th tergite oval, interstices still narrower than diameters of punctures; 6th sternite flat or weakly depressed at postero-median part, shallowly emarginate at postero-median margin; 7th sternite with a moderately deep depression at postero-median part, the depression broadened toward posterior margin which is deeply emarginate, sides of the depression distinctly ridged and furnished with long hairs; 8th sternite with an elongate oval depression, the bottom of the depression almost flat, densely punctate and pubescent, sides of the depression distinctly ridged in anterior halves, with a V-shaped emargination at the middle of posterior margin; 9th sternite with a pair of serrate postero-lateral projections, posterior margin between the projections arcuately emarginate and minutely serrate. Aedeagus (Fig. 1 A) with median lobe bulbous at base, strongly narrowed posteriorly in posterior 1/3, moderately and narrowly rounded at apex, sclerotized area developed at apical part, with remarkably long setae at ventral side, the area continuing to the mediolateral parts, subtransparent area at apico-median part of median lobe small, internal armatures as in Fig. 1 A; parameres slender, hardly reaching apex of median lobe, broadened at apices, pubescent at apico-internal parts.

Female. Unknown.

Holotype, male (Type No. CBM-ZI 51866), Mt. Takanawa, Hôjô-shi, Ehime Pref., 14. iv. 1991, I. OKAMOTO coll. Paratypes, 1 male, same data as holotype; 3 males, same locality, 30. iv. 1991, I. OKAMOTO coll.; 1 male, same locality, 6. v. 1991, I. OKAMOTO coll.; 3 males, same locality, 24. viii. 1991, I. OKAMOTO coll.; 1 male, Mt. Ishizuchi, Saijô-shi, Ehime Pref., 22. vii. 1991, I. OKAMOTO coll.

Distribution. Japan (Shikoku).

Remarks. This new species is closely allied to *S. nipponomontanus* NAOMI, 1988 a from the Kii Peninsula, from which it is separable by the shape of the median lobe of its aedeagus: the apico-lateral margin is very weakly arcuate (while it is almost straight in *S. nipponomontanus*; NAOMI, 1988, fig. 1 E), the apical sclerotized area is distinctly narrower and the subtransparent area of apico-median part is larger and distinct (while it is very indistinct in *S. nipponomontanus*). This species is also allied to *S. zaishin* NAOMI, 1990 a from Shikoku, but is separable from the latter by the smaller subtransparent area and the longer sclerotized area at the apical part of the median lobe.

Etymology. The specific name, *satushin*, is derived from a name of ancient Chinese mask.

Stenus (Nestus) ochiba NAOMI et PUTHZ, sp. nov.

Male. Body length: 2.7–3.3 mm (fore-parts: 1.5–1.6 mm).

Head and abdomen black; pronotum and elytra black to dark red; maxillary palpi with 1st and 2nd segments yellowish, 3rd dark brown; labrum entirely black; antennae brown to reddish brown; legs brown to reddish brown, with apical parts of femora and basal parts of tibiae more or less infusate.

Body small and convex above.

Head shorter (0.69: 1) and broader (1.18: 1) than pronotum, transverse, 1.73 times as broad as long, broadest at about posterior $2/5$; labrum with sparse and moderately short setae; clypeofrontal area strongly deflexed, with long and sparse setae, obscurely punctate in posterior half; interocular area with basiantennal tubercles distinct, a pair of longitudinal depressions which are distinct, broad and deep, median part between the depressions strongly elevated; punctation moderately fine, dense and regular, diameter of puncture slightly larger than basal cross-section of 3rd antennal segment, interstices narrow, shining and indistinctly sculptured. Antennae hardly reaching the posterior $1/3$ of pronotum, 1st and 2nd segments each elongate oval, distinctly broader than 3rd, 8th smallest, 9th to 11th forming a loose club, with relative lengths of segments from base to apex as 10: 10: 12: 8: 8: 6: 6: 5: 6: 7: 10.

Pronotum about as long as and narrower than (0.83: 1) elytra, well convex above, broadest at about anterior $1/3$; surface slightly uneven; punctation very dense, rough and distinctly coarser than on frons, diameter of puncture nearly as large as widest cross-section of 3rd antennal segment, interstices between punctures shining but distinctly sculptured. Mesoscutellum with a large fovea on posterior corner.

Elytra broader than long (1.24: 1), convex above, constricted at base, then gradually broadened posteriorly, hind margins together forming a shallow emargination; surface weakly uneven, with sutural margin elevated; punctation rough, very dense, slightly coarser than on pronotum, interstices between punctures shining but distinctly sculptured.

Legs relatively short; middle and hind femora each with a small spine at the apico-internal part.

Abdomen weakly narrowed posteriorly; paratergites distinct and punctate in 3rd to 6th segments; keels and transverse depressions similar in structure to those in *S. satushin* sp. nov.; punctures on 3rd tergite oval, dense, distinct and regular and the interstices narrow, shining, and sculptured, punctures becoming smaller posteriorly from 3rd to 8th tergites, punctures on 8th tergite almost round, interstices slightly narrower than or as broad as diameters of punctures; 6th sternite without depression nor emargination; secondary sexual modification of male on 7th to 9th sternites similar to those of *S. satushin* sp. nov., but the emarginations in 7th and 8th sternites are shallower. Aedeagus (Fig. 1 B–C) with median lobe gently bulbous at base, weakly narrowed posteriorly near the middle, strongly narrowed in posterior $1/3$ toward obtuse apex, sclerotized area developed in apical part, with very long setae, the area continuing to the medio-lateral parts, broader in specimen from Mt. Ontake (Fig. 1 B) than in specimen from Hiroshima (Fig. 1 C); a pair of distinct teeth at the apico-internal sides of the sclerotized area, sub-transparent area at apico-median part elongate oval and small, internal armature as in Fig. 1 B–C; parameres slender, almost straight, broadened at apices, pubes-

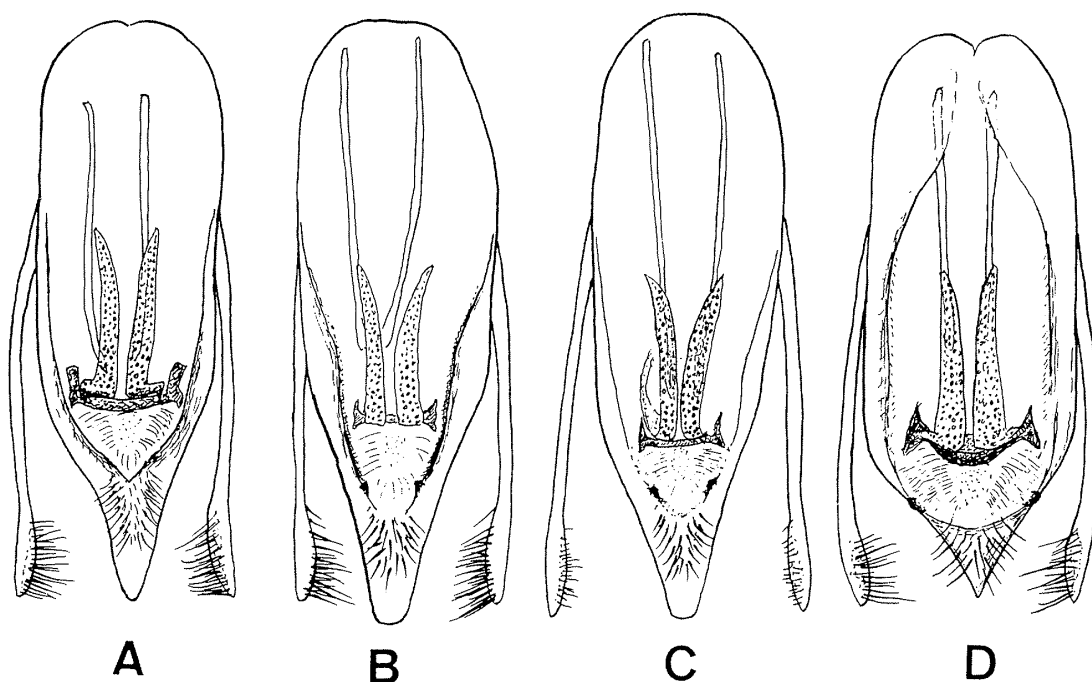


Fig. 1. A, *Stonus satushin* sp. nov. from Ehime; B, *S. ochiba* sp. nov. from Mt. Ontake, Nagano; C, *S. ochiba* sp. nov. from Hiroshima; D, *S. toukin* sp. nov. from Aichi. A–D, Aedeagi in ventral view.

cent at apico-internal parts, pubescence longer in the specimen from Ontake than in the specimen from Hiroshima.

Female. Unknown.

Holotype, male (PUTHZ collection), Mt. Ontake (3,000 m), Nagano Pref., 23. ix. 1972, R. YOSHII coll. *Paratype*, 1 male, same data as holotype (Museum Geneva).

Further specimen examined. 1 male, Nakatsuya, Yoshiwa-mura, Hiroshima Pref., 28. vii. 1990, I. OKAMOTO coll.

Distribution. Japan (Honshu).

Remarks. At present this new species is collected from two separated localities (high altitude of Mt. Ontake and lowland of Hiroshima). In addition, the aedeagi have slight differences between these two populations (Fig. 1 B–C) in the condition of parameral pubescence and structure of median lobe, *i.e.*, in the specimen from Mt. Ontake, the ventro-lateral teeth of the apical portion of the median lobe lie on longitudinal ridges which are absent in the specimen from Hiroshima. This suggests that these two populations can be separated into distinct subspecies. However, we treat these variations as infraspecific ones until we gain more materials, especially from Kinki District.

This species is allied to *S. satushin* sp. nov., but in the median lobe of the aedeagus, the subtransparent area of the apico-median part is more elongate, and the apex is obtuse. This species is also similar to the other members of the *S. zim-*

mermanni subgroup such as *S. giushin* NAOMI, 1990 a and *S. zaishin* NAOMI, 1990 a, etc., but it is easily separable from them by the obtuse apex of the median lobe.

Etymology. The specific name is the Japanese noun *ochiba*, which means "fallen leaves".

Stenus (Nestus) toukin NAOMI et PUTHZ, sp. nov.

Male and female. Body length: 1.9–2.2 mm (fore parts: 1.2–1.3 mm).

Head and abdomen entirely black; pronotum and elytra almost black, though a very little paler than head; maxillary palpi reddish brown to yellowish brown; labrum black; antennae shining, with 1st and 2nd segments black, 3rd to 11th reddish brown; legs reddish brown except for apical parts of femora more or less infusate.

Body very small, well convex above.

Head shorter (0.73: 1) and broader (1.26: 1) than pronotum, 1.69 times as broad as long, broadest at about posterior 1/3; labrum with sparse and long setae, clypeo-frontal area with indistinct punctures and sparse setae; interocular area with basi-antennal tubercles indistinct, a pair of distinct longitudinal depressions, median part between the depressions distinctly elevated, extending well beyond the level of inner eye-margins; punctation moderately fine, regular and dense, diameter of puncture about as wide as cross-section of 3rd antennal segment in basal third, interstices shining, without sculptures. Antennae with 1st and 2nd segments each elongate oval, 3rd to 5th broader than those in *S. ochiba* sp. nov., 8th smallest, 9th to 11th forming a loose club, with relative lengths of segments from base to apex as 10: 9: 10: 7: 6: 5: 5: 4: 5: 6: 8.

Pronotum as long as broad, narrower than (0.80: 1) elytra, convex above, broadest near the middle, moderately constricted at base; punctation moderately coarse, very dense and rough, diameter of puncture about as large as widest cross-section of 3rd antennal segment, interstices shining and indistinctly sculptured. Mesoscutellum with a large fovea at posterior corner.

Elytra short, trapeziform, broader than long (1.36: 1), constricted at base, side margins distinctly but not much divergent, hind margins together forming a very shallow V-shaped emargination; punctation slightly coarser than on pronotum, very dense and rough, interstices narrow, shining and indistinctly sculptured.

Legs relatively short; middle and hind femora each with a small spine at apico-internal part.

Abdomen with paratergites distinct and punctate in 3rd to 6th segments; keels and transverse depressions similar in structure to those in *S. satushin* sp. nov.; punctures on 3rd tergite round to oval, distinct and dense, the interstices very shining and sculptured, punctures becoming smaller posteriorly from 3rd to 8th tergites, punctures on 8th tergite almost oval, the interstices as broad as or a little narrower than diameters of punctures.

Male. Abdomen subparallel-sided; 7th and 8th sternites each with a shallow depression at postero-median part, and emarginate at the middle of posterior margin; 9th sternite without distinct postero-lateral projections, hind margin minutely serrate and arcuately and shallowly emarginate. Aedeagus (Fig. 1 D) with median lobe robust, broad and parallel-sided in basal 3/4, then abruptly narrowed toward pointed apex, sclerotized area not so much developed at apical part on which sparse setae are found, the area continuing toward base of median lobe, a pair of minute teeth turned outside at the sides of the apical portion of the median lobe, subtransparent area at apico-median part of median lobe relatively large, internal armatures as in Fig. 1 D; parameres slender, weakly curved internally, weakly swollen at apices, pubescent at apico-internal parts.

Female. Abdomen robust, subparallel-sided; 8th sternite entire at posterior margin.

Holotype, male (Type No., CBM-ZI 51867), Mennoki Pass, Aichi Pref., 13. viii. 1990, S. NOMURA coll. Paratype, 1 female, same locality as holotype.

Distribution. Japan (Honshu).

Remarks. This species is allied to *S. zimmermanni* PUTHZ, 1968, but the body is narrower and shorter, and the elytra are shorter, and in the median lobe of aedeagus, the subtransparent area at the apico-median part is larger. This species is clearly separable from all the members of the *S. zimmermanni* subgroup by the teeth turned outside at the lateral margin of the apical portion of the median lobe.

As the condition of the holotype specimen is not good, measurement is made on the basis of the paratype specimen.

Etymology. The specific name, toukin, is derived from a name of ancient Chinese mask.

Stenus (*Stenus* s. str.) *lewisius* SHARP

Stenus lewisius SHARP, 1874, Trans. ent. Soc. Lond., 1874: 82.

Stenus gatenpio NAOMI, 1990 a, Nat. Hist. Res., (1): 99. *Syn. nov.*

Remarks. The holotype of *Stenus gatenpio* is deposited in the collection of the Natural History Museum and Institute, Chiba. As the results of examination of the type of *S. lewisius*, *S. gatenpio* cannot be specifically distinguished from the small specimens of *S. lewisius* both in the general appearance and the shape of aedeagus. Therefore, it is concluded that *Stenus gatenpio* is a junior synonym of *S. lewisius*.

Stenus (*Nestus*) *japonicus* SHARP

Stenus japonicus SHARP, 1874, Trans. ent. Soc. Lond., 1874: 84.

Stenus niponensis CAMERON, 1930, Ent. mon. Mag., 66: 205. *Syn. nov.*

Remarks. The female holotypes of *Stenus niponensis* and *S. japonicus* are

deposited in the Natural History Museum (London). As the results of examination of these two types, *S. niponensis* cannot be specifically distinguished from *S. japonicus*, so that *S. niponensis* is regarded as a junior synonym of *S. japonicus*.

***Stenus (Nestus) puberulus* SHARP**

Stenus puberulus SHARP, 1874, Trans. ent. Soc. Lond., **1874**: 83.

Stenus sasajii NAOMI, 1988 a, Proc. Jpn. Soc. syst. Zool., (38): 43. *Syn. nov.*

Remarks. The holotype of *Stenus sasajii* is deposited in the collection of the Entomological Laboratory, Kyushu University. As the results of examination of the type of *S. puberulus*, *Stenus sasajii* cannot be specifically distinguished from *S. puberulus* in the shape of aedeagus. We consider that *S. sasajii* was erroneously described on the basis of the specimens of *S. puberulus* with narrower body. Therefore, *S. sasajii* is regarded as a junior synonym of *S. puberulus*.

***Stenus (Nestus) mikado* HROMÁDKA**

Stenus mikado HROMÁDKA, 1979, Reichenbachia, **17**: 115.

Stenus nomurai NAOMI, 1988 a, Proc. Jpn. Soc. syst. Zool., (38): 45. *Syn. nov.*

Remarks. The holotype of *Stenus nomurai* is deposited in the collection of the Entomological Laboratory, Kyushu University. As the results of examination of the type of *S. mikado*, *S. nomurai* cannot be specifically distinguished from *S. mikado* from Honshu. Therefore, *Stenus nomurai* is regarded as a junior synonym of *S. mikado*.

***Stenus (Hypostenus) punctifer* NAOMI**

Stenus punctifer NAOMI, 1988 b, Elytra, Tokyo, **16**: 35.

Stenus jambar NAOMI, 1990 b, Elytra, Tokyo, **18**: 52. *Syn. nov.*

Remarks. The holotype of *Stenus jambar* is deposited in the Entomological Laboratory, Kyushu University. As the results of examination of the type of *S. punctifer*, *S. jambar* cannot be specifically distinguished from *S. punctifer*. Therefore, *Stenus jambar* is regarded as a junior synonym of *S. punctifer*.

***Stenus (Hypostenus) guttalis* FAUVEL**

Stenus guttalis FAUVEL, 1895, Rev. Ent., Caen, **14**: 212; PUTHZ, 1969, Bull. Inst. r. Sci. nat. Belg., **45** (9): 21.

Stenus guttalis ishigakiensis NAOMI, 1988 b, Elytra, Tokyo, **16**: 39. *Syn. nov.*

Remarks. The holotype of *Stenus guttalis ishigakiensis* NAOMI, 1988 b, is deposited in the collection of the Entomological Laboratory, Kyushu University. NAOMI (1988 b) separated this subspecies from the nominotypical one by the in-

distinct elytral spots, etc. However, it was clarified that the conditions of elytral spots change from one specimen to another and are not stable in this species. In addition, the specimen from Ishigaki Is. cannot be specifically distinguished from specimen of nominotypical one in the male sexual characters. Therefore, it is concluded that *S. guttalis ishigakiensis* NAOMI is a junior synonym of *S. guttalis* FAUVEL.

***Stenus* (*Stenus* s. str.) cf. *amurensis* EPPELSHEIM**

Stenus amurensis EPPELSHEIM, 1886, D. ent. Z., 30: 43.

Specimens examined. 2 females, Hyôtan Pond, Akan N. P., Hokkaido, 4. vii. 1986, S. NOMURA coll.

Remarks. This species was described from Amur region by EPPELSHEIM (1886). PUTHZ (1974) recorded it from Irkutsk and Jakovlevka, Russia. *Stenus amurensis* belongs to the *clavicornis* group and very closely resembles several other species of the same species-group. Correct identification of the species belonging to this group should be made by examination of males. The two females recorded here from Japan probably belong to *S. amurensis*, but confirmation is needed by examining male aedeagus. Since *S. amurensis* has not been recorded from Japan up to the present, the above record is the first from Hokkaido, Japan.

***Stenus* (*Nestus*) *boops* LJUNGH**

Stenus boops LJUNGH, 1804, Web. u. Mohr, Beiter., 2: 158.

Specimens examined. 1 male, Kirakotan, Kushiro Moor, Hokkaido, 25. viii. 1990, M. SATÔ coll.; 1 female, Hyôtan Pond, Akan N. P., Hokkaido, 4. vii. 1986, S. NOMURA coll.

Remarks. This species is common and widely distributed from Europe to Amur region. The record given above is the first from Hokkaido, Japan.

***Stenus* (*Nestus*) *raddei* RYVKIN**

Stenus raddei RYVKIN, 1987, Senckenb. biol., 68: 156.

Specimens examined. 1 male, Akanuma, Kushiro Moor, Hokkaido, 25. viii. 1990, M. SATÔ coll.

Remarks. This species was described from East Asia (Island in Sungari River IX; Maritime Prov.) by RYVKIN (1987), and PUTHZ knows a specimen from the Amur region. This is the first record from Hokkaido, Japan.

***Stenus* (*Hypostenus*) *kiesenwetteri* ROSENHAUER**

Stenus kiesenwetteri ROSENHAUER, 1856, Thiere Andalus., p. 76; PUTHZ, 1992, Ent. Bl. Biol. Syst. Käfer, 88: 153.

Specimens examined. 1 male, Iwabokki, Kushiro Moor, Hokkaido, 25. viii. 1990, M. SATÔ coll.; 1 male and 5 females, Kushiro Moor, 2. vi. 1990, A. SMETANA coll.; 1 male, Ozu, Toyokoro-chô, Hokkaido, 5. viii. 1990, K. HAGA coll.; 1 female, Ozu, Toyokoro-chô, Hokkaido, 13. vii. 1992, K. HAGA coll.

Remarks. This species is rare and has been known only from the European Region up to the present. PUTHZ (1992) recently recorded it from Hokkaido, Japan.

Stenus (Nestus) mammops CASEY

Stenus mammops CASEY, 1884, Rev. Sten. Amer. north Mex., p. 97.

Specimens examined. 1 male and 4 females, Shiretoko Pass, Shari-chô, Hokkaido, 3. viii. 1989, K. HAGA coll.

Remarks. This species was described by CASEY (1884) from several localities in North America. PUTHZ (1972) first recorded it from the Palearctic Region (East Asia), and NAOMI (1988) first recorded this species from Rishiri Is. off Hokkaido, Japan. The record given above is the first from the main island of Hokkaido, Japan.

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